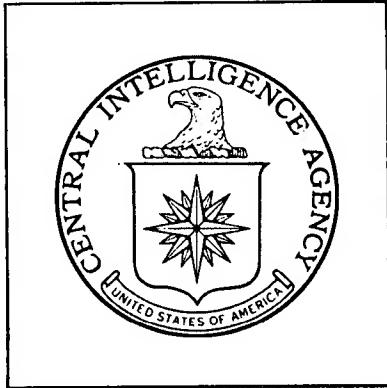


Top Secret



**Industrial Facilities
(Non-Military)**

**DIRECTORATE OF
INTELLIGENCE**

Basic Imagery Interpretation Report

Pai Yang Ho Petroleum Refinery, Yu-men

Yu-men, China



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RCS

13/0185/69

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DATE

JUNE 1969

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PAGES

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CENTRAL INTELLIGENCE AGENCY
 Directorate of Intelligence
 Imagery Analysis Service

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INSTALLATION OR ACTIVITY NAME

Pai Yang Ho Petroleum Refinery, Yu-men

COUNTRY

CH

WAC-PIC NO 25X1
0332-15A

UTM COORDINATES

47SLQ769095

GEOGRAPHIC COORDINATES

39-50-10N 97-41-50E

MAP REFERENCE

15th RTS. USATC 200, Sheet M0332-2HL, 3rd edition, August 1968, Scale 1:200,000
 (SECRET)

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LATEST IMAGERY USED

NEGATION DATE (If required)

Not Required

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ABSTRACT

This report provides a detailed imagery-derived analysis of the Pai Yang Ho Petroleum Refinery, Yu-men, China from September 1959 to August 1968.

The major production facilities at this refinery were complete and in operation when first seen on photography of September 1959. Between 1964 and 1966 a possible lubricating oil plant was added. The refinery products are gasoline, kerosene, diesel and fuel oil, residuum and possibly a full range of lubricating oils, waxes and asphaltic materials.

This report includes a detailed line drawing, a photograph of the refinery, a discussion of the physical features, operational functions, facilities and equipment, and reference data.

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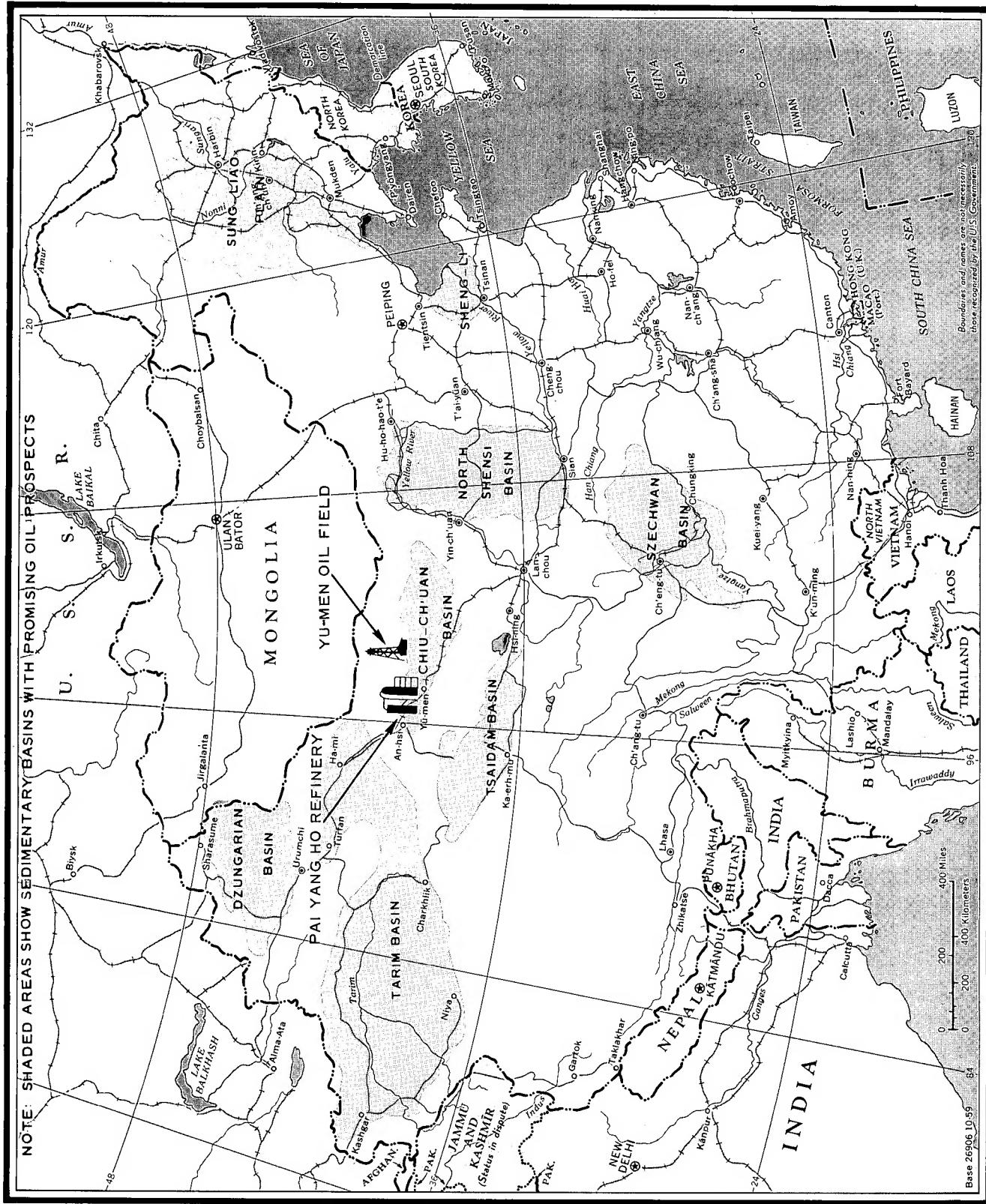


FIGURE 1. LOCATION MAP.

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INTRODUCTION

The Pai Yang Ho Petroleum Refinery, Yu-men, is located in Kansu Province on the west side of the town of Yu-men. Crude oil for charging the refinery is probably brought in by pipeline from the nearby oil fields. The Yu-men Heat and Thermal Power Plant [redacted] which furnishes electric power to the refinery, is located 1 nautical mile to the north. The refinery is served by a good all-weather road system and by a spur from the main line between Ha-mi and Lan-chou.

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BASIC DESCRIPTIONPhysical Features

The refinery occupies an irregular-shaped area which measures approximately 5,600 by 3,800 feet and contains approximately 490 acres. The refinery is partially secured by a fence or a wall.

Operational Functions

The major products of this refinery are gasoline, kerosene, diesel and fuel oil, and residuum. A full range of lubricating oils, waxes and asphaltic materials are also possibly produced.

The major functional units include a shell still, an atmospheric distillation unit, a multistage distillation unit, a possible thermal cracking unit, and a possible light ends unit. The identification of a possible lubricating oil plant is based on the existence of groups of closely spaced, small and medium size tanks, located adjacent to processing equipment typical of that found in lubricating oil production facilities.

Status and Activity

Poor resolution and small scale of the early photography made a detailed analysis of the development of the refinery nearly impossible.

The crude oil distillation, thermal cracking and light ends recovery units appeared complete and operating when first seen on photography of September 1959. The possible lubricating oil plant (Area C) and the unidentified secondary processing units (Area E) were constructed between September 1964 and February 1966.

The only construction activity on August 1968 coverage was in the unidentified processing area (Area B). The plant appeared to be operating on this imagery, the latest used in this report.

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Facilities and Equipment

The following table lists the functional area and equipment within the refinery. All items are keyed to Figure 3.

<u>Area</u>	<u>Description</u>	<u>Equipment*</u>
A	Possible Treating and Storage	<ul style="list-style-type: none"> 1 Pipe furnace 4 Processing buildings 23 Cylindrical treating/storage tanks <ul style="list-style-type: none"> 1-45 ft. diam. 2-40 ft. diam. 3-20 ft. diam. 7 Associated buildings 1 Spray pond
B	Unidentified Processing U/C	<ul style="list-style-type: none"> 1 Processing building U/C 12 Support buildings 1 Spray pond 2 Cylindrical tanks U/C <ul style="list-style-type: none"> 25 ft. diam. 2 Tank bases U/C
C	Possible Lubricating Oil Plant	<ul style="list-style-type: none"> 1 U/I processing unit with <ul style="list-style-type: none"> 1 Pipe furnace 2 Large possible packaging buildings 12 Cylindrical processing tanks/storage tanks 1 U/I processing unit with <ul style="list-style-type: none"> 2 Banks U/I equipment 3 U/I processing buildings 40 Cylindrical processing/storage tanks 1 Gasholder <ul style="list-style-type: none"> 25 ft. diam.

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Area	Description
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Equipment*

- | Possible packaging plant with
 - | large L-shaped possible packaging building
 - 20 Cylindrical tanks

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1-20 ft. diam.

I U/I processing unit with
1 large irregularly shaped building
2 Associated buildings
25 Cylindrical processing/storage tan

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- I U/I processing unit with
 - 2 Processing buildings
 - 11 Miscellaneous buildings
 - 14 Cylindrical tanks
 - 1-20 ft. diam.
 - 6-15 ft. diam.
 - 6-10 ft. diam.

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5 Miscellaneous buildings

D Products Storage

59 Cylindrical tanks

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15.30.6+diamond

15-30 ft. diam.

4 Horizontal tanks

1 Possible packaging building
12 Associated buildings

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<u>Area</u>	<u>Description</u>	<u>Equipment*</u>		
E	Secondary Processing	5 U/I secondary processing units		
		I Unit with		
		1 Pipe furnace		
		1 Bank U/I processing equipment		
		1 Processing building		
		3 Associated buildings		
		11 Cylindrical processing tanks		
		7-10 ft. diam.		
		I Unit with		
		4 Processing buildings		
2 with processing equipment on roof				
4 Columns/reactors				
1 Bank processing equipment				
I Unit with				
1 Pipe furnace				
1 Processing building				
8 Cylindrical processing tanks				
I Unit with				
2 Processing buildings				
14 Cylindrical processing tanks				
1-20 ft. diam.				
I Unit with				
1 L-shaped building				
1 Bank processing equipment				
2 Miscellaneous buildings				
10 Miscellaneous buildings				
1 Pipe furnace (in state of disrepair)				
17 Cylindrical storage tanks				
1-30 ft. diam.				
3-10 ft. diam.				
F	Crude Oil Distillation	I Shell still (10 stills)		
		4 Pipe furnaces		
		2 Fractionating columns		
		1 Possible compressor building		
		1 Transfer building		
		5 Associated buildings		

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<u>Area</u>	<u>Description</u>	<u>Equipment*</u>	
		7 Cylindrical tanks	25X1
		2-20 ft. diam. 2-15 ft. diam.	
G	Intermediates Storage	2 Possible control/pumping buildings 24 Cylindrical tanks	25X1
		4-20 ft. diam.	25X1
		4-10 ft. diam.	
H	Crude Oil Distillation and Secondary Processing	<ul style="list-style-type: none"> I Topping unit with <ul style="list-style-type: none"> I Fractionating column I Pipe furnace I Compressor/control building I Atmospheric distillation unit with <ul style="list-style-type: none"> I Fractionating column I Redistillation column I Pipe furnace I Compressor/control building I Multistage distillation unit with <ul style="list-style-type: none"> I Atmospheric distillation column I Vacuum distillation column I Redistillation column 2 Pipe furnaces I Compressor building I Control building I Bank of heat exchangers/cooling coils I Possible cracking unit with <ul style="list-style-type: none"> 4 Fractionating columns/reactors/flash chambers I U/I column 2 A-frame furnaces I Control building I Associated building I Possible light ends unit with <ul style="list-style-type: none"> 3 Columns/absorbers 4 Associated buildings I Cooling pond 2 Water spray ponds I Water treatment pond 5 Miscellaneous buildings I Flare stack 	25X1

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<u>Area</u>	<u>Description</u>	<u>Equipment*</u>
		24 Cylindrical tanks
		
		4-20 ft. diam.
		
I	Crude Oil Storage	I Large U/I building 4 Pumping buildings 1 Water pond 9 Cylindrical tanks 1-95 ft. diam. 1-50 ft. diam. 6-40 ft. diam.
		

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*All storage tank dimensions are approximate.

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REFERENCES

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Map

15th RTS. US Air Target Chart, Series 200, Sheet M0332-2HL, 3rd edition,
Aug 68. Scale 1:200,000 (SECRET)

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Requirement

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